

prevention and treatment is determined by terms within which the bioagent is identified.

Direct and rapid spore detection by antibodies based detection system is very attractive alternative to current PCR-based assays or routine phenotyping which are the most accurate but are also complex, time-consuming and expensive. The main difficulty with respect to such kind of anthrax spores detection is a cross-reaction with spores of closely related bacteria. For development of species-specific antibodies to anthrax spores recombinant scFvs or hybridoma technique were used. In both case surface spore antigens contained species-specific epitopes are need. Among exosporium proteins only ExsF(BxpB), ExsK and SoaA are specific to *B.cereus* group. On the surface of *B. anthracis* spores, a unique tetrasaccharide containing an novel monosaccharide – anthrose, was discovered. It was shown that anthrose can be serving as species-specific target for *B. anthracis* spores detection. We have revealed that EA1 isolated from spore of Russians strain ST1-1 contain carbohydrate which formed species-specific epitopes and determine immunogenicity of this antigen. Antibodies to this antigen specifically recognized the surface target of *B. anthracis* spores and do not reacted with others *Bacillus* spore. Based on these antibodies we developed the test-systems in different formats for rapid direct detection and identification of *B. anthracis* spores.

The results of trial these test-systems with using more than 50 different *Bacillus* strains were indicated that carbohydrate of EA1 isolated from spore is effective immunodiagnostic target for anthrax spores biodetection.

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9. AN INTEGRATED APPROACH TO RISK ASSESSMENT AND MITIGATING THE CBRN THREAT

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CBRN mass casualty events threat mitigation remains today the highest international priority. Although significant progress has been made, the national security requirements for efforts to combat Weapons of Mass Destruction and Weapons of Mass Disruption will be of the highest national priority in the near future. An integration of a number of approaches is essential in the risk assessment and mitigating the CBRN treat. Preparedness measures and procedures, engineering, science and technology, policy, medical, and emergency response are essential to reduce the threat

from the proliferation and use of weapons of mass destruction (WMD). Improved coordination between international, public and private security entities is also essential task to hopefully prevent the terrorist attacks. In this lecture, it will be presented very important scientific approach to risk assessment of potential use of nuclear, radiological, biological or chemical weapons in terrorist actions. An integrated approach for mitigating the CBRN threat, crisis management and preparedness measures for prevention and reduction of potential consequences, will be presented.

Key Words/Phrases: Mitigating the CBRN threat, Risk assessment, CBRN Mass Casualty Events

10. EXPLOSIVE DEVELOPMENTS IN BIOTECHNOLOGY AND THE ROLE OF BTWC IN STRENGTHENING A GLOBAL BIOSECURITY / BIOSAFETY

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The international community is confronted by a unique challenge in dealing with the threat posed by the potential use of biology and the life sciences in hostile purposes. As we know, the Biological Weapons Convention (BWC) entered into force thirty four years ago. It is a simple instrument, only a few pages long, but its prohibitions are clear, succinct, categorical and definitive, but it is an instrument of principle rather than procedure.

Relevant resources of biological and toxin agents, technologies and knowledge are more numerous and more widely distributed than their equivalents in other disarmament fields (chemical, radiological or nuclear). In the 1990s, negotiations were begun on a protocol to strengthen and verify the BWC, which would have added to the Convention the verification elements present in other regimes. After many years of work, this effort collapsed in disagreement and recrimination in 2001.

After the Fifth Review Conference in 2002, BWC States Parties succeeded to establish a work program for 2003 to 2005, at which they would work on several specific topics related to better implementation of the Convention. With that approach of the work, the necessary network of collaboration and coordination were developed into a flexible oversight and prevention of the biological and toxin weapons.

Experts from all around the world gathered to share experiences and ideas on how to deal with the threat posed by biological weapons. Officials from health, science and agriculture ministries made connections with their counterparts in defense, justice, foreign affairs and security agencies.

The explosive developments in biotechnology represent today serious threat and no government or international organization could hope to monitor effectively the tens of thousands of small biotechnology facilities in operation worldwide. Intelligible, this is a problem that needs a collective, multifaceted and multidimensional approach.

However, after the Sixth Review Conference States Parties of the BWC formalized the new approach and recognized the importance of safety and security of biological resources and started cooperation with the scientific, medical, commercial and educational communities.

So called 2007–2010 BWC intersessional process of the work started with significant involvement of NGOs, the scientific community, academics, commercial industry and civil society.

New synergy among key international organizations as WHO, OIE, FAO and OPCW, and actors dealing with the BWC directly or indirectly is crucial in the areas of disease surveillance, fighting chemical weapons, and opposing the threat of bioterrorism.

In such a vision, the BWC will be key, both as a clear and fundamental legal norm, and as a forum for coordination of the various activities.

Biological Weapons Convention will play an ever more important role in efforts to maximize the benefits offered by biotechnology while minimizing its potential for malign and hostile use.

Key Words/Phrases: Biotechnology, BTWC, Biosafety and Biosecurity, Biothreat



Dr. Slavko Bokan is former expert and advisor in NBC Medical Defense of Croatian Arm Forces-CAF and MOD. His major research experiences were in the field of toxicology, medical treatment, protection, detection, identification and decontamination against nuclear, radiological, chemical, biological, and toxin weapons and also in occupational health and industrial toxicology. He was Chairman of the South Eastern Europe Defense Ministerial (SEDM) Working Group on Defense/Military Support to Counter-proliferation, Border Security and Counter-terrorism (CBSC). Last fourteen years Dr. Bokan was official expert member of Croatian Delegation during negotiations into Ad-hoc Group and in the intersectional process of states parties Biological Weapons Convention (BWC) in Geneva. He has assisted the OPCW in many efforts in Croatia such as the first OPCW exercise on assistance, ASSISTEX-I that was held 2002 in Zadar, Croatia. He helped to establish and serves as a Chair of the well known CBMTS-Industry series of scientific meetings with authentic title World Congress on Chemical, Biological and Radiological Terrorism which are held each two years in Croatia.

11. THE ROLE OF POISON CONTROL CENTERS IN CBRN INCIDENTS

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Poison Control Centers (PCCs) have historically played a limited, parallel role in management of CBRN incidents; they are frequently called for advice by the public or health care providers when such incidents occur, but in many cases are not considered an integral part of the CBRN disaster emergency response team, lacking a "place" in the Incident Command Structure (ICS). This is unfortunate, as PCCs represent an important public health resource. The roughly 60 centers in the U.S. are available 24/7, 365 days/year. Telephones are manned by professionals, including pharmacists and nurses with additional specialized training in poisoning response. PCC medical directors are generally trained in Emergency Medicine, Pediatrics or Preventive Medicine, with subspecialty training in Medical Toxicology. Many toxicologists attend specialized training in the radiation emergency management at REAC/TS. PCCs have extensive databases for poisoning management coupled with GIS surveillance. This combination of expertise and information renders PCCs well prepared to advice on decontamination and treatment of CBRN-contaminated victims. Their toxicology expertise allows their participation in risk assessment. PCCs are highly trusted by the community, enhancing their role in risk communication. We recently initiated a program that provides guidance on activation of PCCs by the Region 6 Regional Response Team (RRT6), Co-Chaired by the US Environmental Protection Agency (EPA) and the US Coast Guard, serving as the federal component of the National Response System for the states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The program will be described, with emphasis on how PCCs may work within ICS.



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12. URGENT MEDICAL RESPONSE IN CBR INCIDENTS

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